AF/IFW

Navy Case No. 84,352

In the United States Patent and Trademark Office

In re: Villalobos et al
Serial No.: 10/601,884 Examiner: Ling X. Xu
Filed: June 24, 2003 Art Unit: 1775
For: Spinel and Process for Making Same Date: November 1, 2005

Reply Brief

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20230:

Sir:

In response to the Examiner's Answer dated Sept. 14, 2005, on p.3 thereof, the Examiner is contending that raising temperature of the mixture to about 1300°C - 1600°C for up to 3 hours, as disclosed in col. 3, lines 35-57 of the Seller's reference, would cause the LiF sintering aid to vaporize and therefore, Sellers final sintered spinel product anticipates the recitation "essentially devoid of a sintering aid" in claim 1.

If the Examiner is taking the position, in the anticipation rejection, that the prior art product of the Sellers' reference does not have any LiF remaining, this is an argument of anticipation by inherency, and the Examiner has not made the requisite showing for inherency.

At the interview with the Examiner on April 1,2005, the Examiner was given a hand-out and p.3 thereof entitled "Trapped LiF due to Rapid Heating" the essence of which hand-out was submitted as a Declaration by Dr. Sanghera, it is noted that the Sellers reference wants to retain the LiF at 1300°C - 1600°C during sintering/densification, disclosed in col. 3, lines 22-43, which includes first and second steps of the procedure. On the basis of experimentation with the prior art Sellers spinel product, Dr. Sanghera concluded, at top of p. 5 of his Declaration, that procedure disclosed in the Sellers reference, concerning retention of the sintering aid, leads to trapped LiF in closed pores, which LiF cannot escape even at 1600°C. Furthermore, Dr. Sanghera concluded, at about the middle of p. 5 of his Declaration, that presence of LiF in the Sellers spinel product leads to areas of high optical scattering of light and reduced transparency, as evidenced by the disks on p.2 of the hand-out, and which is also evident from Fig. 4, herein.

Also, Dr. Sanghera states, at about the middle of p.3 of his Declaration, that procedure disclosed in the Sellers reference leads to considerable grain growth and large sized grains, not sub-micron, as the Examiner has concluded. In this connection, please note that claim 1 recites that the spinel product is devoid of grains larger than about 1 mm and claim 4 recites that

the spinel product is devoid of grains of exaggerated size. As noted at bottom of p.6 of the specification, exaggerated grain growth leads to grains that are greater than 3 times to several orders of magnitude larger than an average sized grain.

Along with the Reply Brief in triplicate, enclosed are 3 color originals of the hand-out given to the Examiner at the interview held on April 1, 2005, which handouts should facilitate understanding of the issues herein.

For the reasons given by Dr. Sanghera, the materials taught by the Sellers reference will retain LiF. Accordingly, the Sellers reference could not teach or suggest the claimed material. Reversal of the final rejection and allowance of claims 1,4,5,19 and 20 is requested.

Please charge our account #50-0281 for any fee due hereunder.

Sincerely,

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